

Factors Related To The Quality Of Life Of Diabetes Mellitus Patients In The Matani Community Health Center Work Area, Tomohon City

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Abstract.

This study aims to analyze factors associated with quality of life of diabetes mellitus patients in the Matani Community Health Center Work Area, Tomohon City. This study specifically examines the relationship between duration of disease, depression, anxiety, stress, and family support on quality of life in diabetes mellitus patients. The study used a cross-sectional design with 168 respondents selected through consecutive sampling. Data were collected through interviews using standardized instruments, the DASS 21, HDFSS, and Euro-QoL. The data were analyzed using the chi-square test and multivariate logistic regression. The results showed a significant association between duration of disease and stress with quality of life in diabetes mellitus patients ($p < 0.05$). Patients with a duration of >5 years of suffering are 3 times more likely to have a poor quality of life and patients with severe stress are 2 times more likely to have a poor quality of life. These findings indicate the importance of increasing awareness in adherence to diabetes mellitus management, especially for patients who have suffered for a long time and improving psychosocial monitoring services for diabetes mellitus patients, especially regarding stress management, and becoming the basis for strengthening primary health care programs in diabetes mellitus management so that the quality of life of diabetes mellitus patients improves.

Keywords: *Quality of Life; diabetes mellitus; duration of suffering; anxiety and family support.*

I. INTRODUCTION

Diabetes mellitus is a chronic condition characterized by the inability to produce adequate levels of glucose in the bloodstream or to utilize insulin effectively. According to the International Diabetes Federation (2021), approximately 537 million people live with diabetes, with projections that this number could increase to 643 million by 2030 and further to 783 million by 2045. In Indonesia, diabetes mellitus is a serious public health problem, with prevalence continuing to increase from year to year, making Indonesia the country with the fifth highest number of diabetes sufferers in the world. North Sulawesi Province, particularly Tomohon City, shows a significant upward trend in cases. Data from the Tomohon City Health Office (2024) shows that the number of diabetes mellitus cases in the Matani Community Health Center working area increased from 567 cases in 2022 to 890 cases in 2023. This spike is an important warning because diabetes mellitus is known as a chronic disease with no cure, impacting health-related quality of life. People with diabetes mellitus not only face challenges in managing blood sugar levels but also experience psychological, social, and physical impacts that can reduce their quality of life (WHOQOL, 2012).

Quality of life for individuals with diabetes mellitus is shaped by many factors, including the duration of their diabetes and the presence of comorbidities. Previous studies have tended to focus on clinical aspects such as blood sugar levels and medication adherence without comprehensively examining the psychosocial and environmental factors that influence the quality of life of diabetes mellitus patients (Fitriani et al., 2020). Research on factors related to the quality of life of diabetes mellitus patients has been widely conducted, but not widely conducted in North Sulawesi, particularly in Tomohon City. Most research on the quality of life of diabetes mellitus has concentrated on hospital settings, even though the majority of diabetes mellitus patients receive primary health care services such as community health centers (Puskesmas), which can certainly provide a different picture of patient perceptions of quality of life. The purpose of this study was to analyze factors related to the quality of life of diabetes mellitus patients in the Matani Community Health Center (Puskesmas) area of Tomohon City, so that it can serve as a basis for formulating targeted health policies.

1. Theoretical Study

Diabetes is classified as a chronic disease characterized by elevated blood glucose levels, which occurs when the body fails to produce sufficient insulin or cannot utilize insulin effectively. The common consequences of poorly managed diabetes can cause significant damage over time to various body systems, particularly those affecting the nerves and blood vessels, thus impacting quality of life. Research by Pseki et al. (2022) found that patients with uncontrolled diabetes had significantly lower quality of life scores compared to patients with good blood sugar control. Quality of life is used to summarize the concept of well-being, which encompasses dimensions such as happiness and comprehensive life satisfaction.

Several studies have identified factors associated with the quality of life of diabetes mellitus patients. Research by Ningtyas (2019) shows that individuals with type II diabetes mellitus for more than ten years are four times more likely to experience a decline in quality of life, in line with research by Anis et al. (2017), where long-term diabetes is a factor that influences various dimensions of quality of life. Another study by Iman (2024) shows a significant relationship between stress levels and quality of life in diabetes mellitus patients. Research also shows that diabetes mellitus patients who experience anxiety tend to have poor control of blood sugar levels and experience increased symptoms of the disease (Owen, 2016). Research by Sugiarto et al. (2024), although focused on Parkinson's patients, can provide important insight that anxiety and depression are major factors in determining quality of life in patients with chronic diseases. Other studies by Dewi et al. (2021) and Nilla (2016) found a significant relationship between levels of depression and family support with quality of life in diabetes mellitus patients.

II. METHODS

This study used a quantitative approach with a cross-sectional study design. This design was chosen by the researcher to analyze the relationship between independent variables and the quality of life of diabetes mellitus patients at a certain point in time. The population in this study were all patients diagnosed with diabetes mellitus in the Matani Community Health Center in Tomohon City, North Sulawesi Province, totaling 298 people based on data from July 2024. Sampling was carried out by consecutive sampling with inclusion criteria: patients aged 17 years and above, diagnosed with diabetes mellitus by health workers, and willing to be respondents. Exclusion criteria were pregnant patients and patients who refused to participate. The minimum sample size was calculated using the Isaac and Michael formula, resulting in a minimum requirement of 168 respondents meeting the criteria. Data were collected using instruments in the form of structured interviews and questionnaires. To measure the variables of depression, anxiety, and stress, the Depression Anxiety Stress Scales (DASS 21) questionnaire was used, the family support variable used the Hensarling Diabetes Family Support Scale (HDFSS) questionnaire, while for the quality of life variable, the Euro-QoL questionnaire was used.

The DASS 21, HDFSS, and Euro-QoL questionnaires have good validity and reliability for the general population and diabetes mellitus patients. The collected data were analyzed in stages. Univariate analysis was used to describe the frequency distribution and percentage of each variable. Bivariate analysis was performed using the chi-square test to determine the relationship between the independent variables (duration of suffering, stress, anxiety, depression, and duration of suffering) with the dependent variable (quality of life of diabetes mellitus patients). Furthermore, multivariate analysis was performed using multiple logistic regression to determine which variables were most significantly related to the quality of life of diabetes mellitus patients, with a significance value set at $p < 0.05$. In this study, it can be explained as follows: The quality of life of diabetes mellitus patients (dependent variable) is influenced by five independent variables, namely duration of suffering, depression, anxiety, stress, and family support. The relationship between these variables was analyzed to see which of them had a statistically significant relationship to the quality of life of diabetes mellitus patients.

III. RESULTS AND DISCUSSION

The following shows the results of the research data analysis consisting of respondent characteristics, bivariate analysis results and multivariate analysis results:

Table 1. Respondent Characteristics

Respondent Characteristics	n	%
Woman	137	81.5
Man	31	18.5
Age \geq 60 YEARS	129	76.8
Age < 60 YEARS	39	23.2
Elementary School	10	6
Junior High School	73	43.5
Senior High School	81	48.2
S1	4	2.4

The respondents consisted of 168 diabetes mellitus patients. Based on gender, the majority were women. In terms of age, the majority were over 60 years old. The predominant educational level was high school.

Table 2. Quality of life, duration of suffering, depression, anxiety, stress, and family support

Research Variable Categories		n	%
Quality of Life	Not good	59	35.1
	Good	109	64.9
Long Suffering	> 5 YEARS	58	34.5
	≤ 5 YEARS	110	65.5
Depression	Not Depressed	91	54.2
	Depression	77	45.8
Anxiety	Worried	106	63.1
	No Worries	62	36.9
Stress	Heavy	31	18.5
	Currently	49	29.2
	Light	88	52.4
Family Support	Bad	31	18.5
	Good	137	81.5

Table 3 above shows that the majority of respondents had a good quality of life. Respondents had suffered from diabetes mellitus for at most 5 years. Depression was most prevalent in the non-depressed category. Anxiety was most prevalent in the anxious category, and stress was most prevalent in the mild stress category. Meanwhile, family support was most prevalent in the good family support category.

Table 3. Bivariate Test Results between Independent Variables and Quality of Life

Variables	p-value	Information
Long Suffering	0.009	Significant
Depression	0.337	Not Significant
Anxiety	0.003	Significant
Stres	<.001	Significant
Family Support	0.014	Significant

The chi-square test shows that several variables have a relationship with the quality of life of diabetes mellitus patients, namely length of suffering, anxiety, stress, and family support where the p value is <0.05, while depression has no relationship with the quality of life of diabetes mellitus patients with a p value >0.05.

Multivariate Analysis Results

Logistic regression showed that those with diabetes for >5 years were three times more likely to have a poor quality of life (OR = 3.269; 95% CI = 1.579 – 6.768). Stress was twice as likely to have a poor quality of life (OR = 2.424; 95% CI = 1.577 – 3.913).

Discussion

There is a significant correlation between duration of diabetes mellitus and quality of life in patients with diabetes mellitus in the Matani Community Health Center in Tomohon City. Respondents with diabetes mellitus for \leq 5 years had a higher proportion of good quality of life compared to those with diabetes mellitus for > 5 years. This indicates that the longer a person has diabetes mellitus, the more likely their

quality of life tends to decline. Patients with diabetes mellitus for > 5 years are three times more likely to have a poor quality of life compared to those with diabetes mellitus for less than 5 years. Research by Nuryanto (2021) shows that a longer disease duration increases the risk of complications and worsens psychosocial conditions, which impacts the decline in quality of life. Anxiety is linked to the quality of life of diabetes mellitus patients. According to research by Surya et al. (2020), long-term anxiety in diabetes mellitus patients is closely linked to a decreased quality of life due to worsening glycemic control and decreasing motivation. Persistent anxiety can impair cognitive function, worsen adherence to treatment, and decrease motivation for self-care.

This leads to a decreased quality of life, including physical, psychological, social, and environmental aspects. Stress is associated with the quality of life of diabetes mellitus patients. The highest proportion of good quality of life was found in patients with mild stress compared to those experiencing moderate and severe stress. Higher stress levels are associated with a lower quality of life. High stress levels can trigger emotional exhaustion, discontinuation of treatment, and even worsening physical conditions. Therefore, severe stress can worsen a patient's physical and mental condition, reducing their quality of life. Patients with severe stress are twice as likely to have a poor quality of life as those experiencing mild stress. According to the American Diabetes Association (2022), stress has a significant impact on the quality of life of people with diabetes and can worsen the long-term prognosis. Family support and quality of life of diabetes mellitus patients have a relationship in this study. Patients with good family support showed a significantly higher proportion of good quality of life compared to patients with poor family support. Family support can assist patients in disease management, improve medication adherence, and promote emotional stability, ultimately positively impacting quality of life. A study by Fitriani et al. (2019) showed that social support, especially family support, is a significant predictor of improving the quality of life of people with diabetes mellitus.

IV. CONCLUSION AND SUGGESTIONS

Based on the results of a study conducted on 168 diabetes mellitus patients in the Matani Community Health Center (Puskesmas) in Tomohon City, it can be concluded that prolonged suffering and stress can reduce the quality of life of diabetes mellitus patients. These findings can provide suggestions for the government, through health services and community health centers, to improve psychosocial monitoring services for diabetes patients, particularly related to stress management. Long-term support programs are needed for patients with long-term diabetes mellitus to reduce complications and psychological burdens early on. It is recommended that the government provide training or education to support patients emotionally and socially as part of efforts to improve quality of life.

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